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# THE EOS SAR MISSION: A NEW APPROACH

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The goal of the Earth Observing Systcm Synthetic Aperture Radar (EOS SAR) program is to help develop the modeling and observational capabilities to predict and monitor terrestrial and oceanic processes that arc either causing global change or resulting from global change. Specifically, the EOS SAR will provide important geophysical products to the EOS data set to improve our understanding of the state and functioning of the Earth system. The strategy for the EOS SAR program is to define the instrument requirements based on required input to geophysical algorithms, provide the processing capability and algorithms to generate such products on the required spatial (global) and temporal (3-5 days) scales, and to provide the spaceborne instrumentation with international partnerships, Initially this partnership has been with Germany; currently wc arc exploring broader international partnerships.

Given the current capabilities of the international community, including ERS-1/2, RADARSAT, JERS-1 and ASAR, and given a potential launch of the SIR-C/X-SAR instrument on a free flyer into a low inclination orbit of 57°, the tasks remaining for the EOS SAR arc primarily related to the water status of the Earth. A strategy for an evolutionary approach to deriving the required geophysical properties would use ERS-1/2 and RADARSAT for the icc properties and some land properties which can be derived using change detection algorithms; JERS-1 for landform distribution; the SIR-C/X-SAR Free Flyer for obtaining land classification properties including vegetation type, regrowth biomass, surface roughness and subsurface structure and drainages; and the EOS SAR for the hydrologic temporally varying properties, including soil moisture, snow moisture, vegetation water status, thin icc type and inundation extent, Change in the landscape classification properties could then be monitored using the single frequency international SAR capabilities.

A MultiSAR approach to the EOS SAR which includes a number of SARS provided by Japan, ESA, Germany, Canada and the US in synergistic orbits could be used to attain a truly global monitoring capability using multifrequency polarimetric signatures. These concepts and several options for mission scenarios will be presented.

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